

Decoration of this member is, to say the least, extremely doubtful. Two valuable plates follow of Olympia, in plan and perspective. The restored view of the Acropolis of Athens, however, is hardly so successful. The drawing is coarse, and it gives a very inadequate idea of the way in which the Acropolis dominates the valley to the south of it. In Plate xiv., Figs. 1 and 2 (the latter from a vase) are interesting from their connection with the Eleusinian mysteries. As many of the illustrations are necessarily taken from vases, it would have been serviceable for beginners if some representation with a short description of different kinds of vases, such as the cylix, the lecythus, &c., had been given. Plate xv. shows that votive offerings of models of diseased limbs and other bodily members, suspended at the altars of favourite saints, had their origin in classical times. In its reference to Fig. 2, of Plate xviii., the text gives a valuable reference to the recent discoveries at the Pantheon, which were lately made under the direction of the French architect, M. Chedanne.

Plate xix., Fig. 15, is interesting as showing that the division of the heavens into different *houses* of the mediæval astrologers had its origin in classical augury. Plates xx. to xxiv. are devoted to athletics. In Plate xxii. are illustrations of the method of throwing javelins by means of the *amentum*, a kind of sling attached to the shaft. Some are shown as being thrown overhand, and others underhand, and a curious method by which aid was given to jumping by means of weights held in the hands. Plates xxvii. to xxxiii. are devoted to games and arena combats. Fig. 4 in the first of these plates, from a wall-painting from Pompeii, is an interesting illustration, described thus in the text: "This painting is unique as a contemporary picture of an historical event. Tacitus ('Annals,' xiv. 17) mentions a riot between the people of Nuceria and Pompeii which arose out of a gladiatorial show given by Livineius Regulus. It began with mutual taunts, and then stones were thrown and weapons used. The Pompeians were naturally the stronger party, so that many of the Nucерians were badly wounded, and several slain. As a consequence, Nero stopped the games for ten years. The painting shows the fighting going on in and about the amphitheatre." Fig. 1 in Plate xxxiii., from Brescia, shows that combats with wild beasts were still practised in 530 A.D. in Italy. In Plate xxxiv. we have representations of early Greek warriors and weapons, and also, but of later date, a besieged city from the Nereid tomb in the British Museum, and in Plate xli. a useful diagram showing the arrangement of a Roman camp. In the same and following plates Roman soldiers and their armour are well given, and Greek and other helmets. Young students of Cæsar "de Bello Gallico" will be thankful for the illustrations of the Rhine Bridge in Plate xlv. In Plate xlv. is the difficult subject of the trireme and its oars. It contains only one original document (Fig. 8), namely, the sculptured relief found near the Erechtheum; the other figures are reconstructions in which the difficulty does not appear to have been grasped. The ancient relief certainly implies oars of different lengths; thus much cannot be controverted, but the only possible means by which the rowers on the different banks could have kept time would have been by an inversely corresponding difference given

to the surface of the blades of the oars, which the reconstructions do not show.

Plates xlviii. to li. are occupied by town gateways and fortifications. Then follow private houses, aqueducts, bridges, baths, and calculating boards. In Plate lxii. ancient sundials, which divided the day from rising to setting sun into twelve hours, irrespective of the difference of their lengths in summer or winter. Then follow various agricultural operations, and in Plate lxvi. a warehouse scene, the weighing silphium, a plant used in medicine, grown in Cyrene; a group of decidedly Egyptian type. Then ovens, Plate lxvii., for baking bread; Plate lxviii., for pottery. From Plates lxix. to lxxvi., various arts and crafts. The triclinium is shown and explained in Plate lxxvii. Then follows jugglery and games. Plate lxxxi. shows bridal scenes, followed by female dresses and costumes. In Plate lxxxvii. is a relief from the arch of Constantine, introducing several details of the Roman forum. Plate lxxxviii. follows with a graphic scene of civic life from a wall-painting of Pompeii. Then school scenes are illustrated with wax tablets and writing materials; there is also a pair of proportional compasses, having much analogy to the instrument in modern use. Plates xcii. A and xciii. tell the "tale of Troy divine," from a relief of the Augustan age, representing the Iliupersis, found near Bovillae; and the work concludes with a very complete series of burial scenes—that is, of interment—for there are no representations of cremation. But notwithstanding this and some other omissions, the hundred crowded plates of this volume, from which we have made only a few extracts, contain a vast store of objects for reference, and they are all very much enhanced in value by the descriptions and notes with which Mr. Anderson has enriched the book.

#### A DESIDERATUM IN MODERN BOTANICAL LITERATURE.

*A Hand-book of Systematic Botany.* By Dr. E. Warming, Professor of Botany in the University of Copenhagen. With a Revision of the Fungi, by Dr. G. Knoblauch, Karlsruhe. Translated and edited by M. C. Potter, M.A., F.L.S., Professor of Botany in the University of Durham College of Science, Newcastle-upon-Tyne. (London: Swan Sonnenschein and Co., 1895.)

IT is a curious, and not altogether a pleasant reflection, considering the activity which has been displayed by the botanists of this country within recent years, that we should still be largely dependent on foreign sources for our text-books in more than one main division of this particular science. It is doubtless true that the books are sometimes more or less edited, before they are presented to the English student, but still one can hardly help feeling that an entirely home-grown article, if issuing from first-rate hands, would prove a most welcome change.

It is with somewhat mixed feelings, then, that we greet the appearance of Prof. Warming's "Hand-book of Systematic Botany" in its English form. Moreover, we feel a little inclined at the very outset to quarrel with the title of the book before us; a *hand-book* of systematic botany embodying critical morphological discussion, is exactly what is now wanted—something which may be to us what Eichler's celebrated *Blüthendiagramme* was, and

indeed still is, to our German neighbours. But one can hardly allow that the present volume rises above the rank of a text-book, and of these we have plenty with us. Not that it is intended to depreciate the value of Prof. Warming's book; it is chiefly the question whether an increase of this particular kind of book is just now wanted at all, whilst there is no question whatever but that a genuine 'hand-book' is very much needed indeed. As far as the work goes it is very good, at least in its manner of dealing with the Angiosperms, but it does not go far enough. Thus the order Cucurbitaceæ, as an example taken at random, is dismissed with something less than four pages, and yet the plants included in this order abound in interesting characters. To treat these and others of a similar nature in a brief dogmatic fashion is to abandon the most interesting side of the subject, to say nothing of the educational opportunities which have been missed. But notwithstanding these features of the work, which, professing as it does to be a hand-book, appear to us to be serious defects, we readily admit that, taken as a whole, the account given of the flowering plants is one of the best existing in the English language. The lower groups of plants are less satisfactorily dealt with. In the Fungi, the general method of arrangement followed is that based on Brefeld's researches, but the difficulties connected with *Eremascus* are not touched upon. It may be doubted whether the student will gain a very clear idea of *Oidia*, which, he is told, must be distinguished from "true chlamydospores." The definition runs thus: "The former (*Oidia*), are more simple, the latter are somewhat more differentiated form of carpophore fundaments, which serve for propagation in the same manner as spores." But exactly wherein the difference really consists we seek in vain to find. A purist might object to the expression "brand"-fungi, which is used instead of the more familiar one of smut-fungi; a practical farmer, in this country at least, would also probably smile at the description given of the method of application of blue vitriol as a preventative of the disease caused by these organisms in cereal crops.

The treatment of the Muscinæ strikes us as far too cursory, especially in regard to the considerable amount of work recently done in connection with these plants. The brief statement of Celakovsky's view as to the homology of the moss sporogonium is only calculated to confuse the mind of a student by introducing purely idealistic notions, and its value without a full explanation is absolutely inappreciable. The catalogue of "orders" of mosses, given on pp. 196-197, is also particularly depressing.

The treatment of the vascular cryptogams is decidedly weak, and this is the more surprising, considering the activity which has long been displayed in the investigation of this division of plants. The general description of the embryo, given on p. 201, only applies to a few families, and is not by any means true for most of the groups. Again the usual mistake is made as regards the sporangium of *Isoëtes*, which is stated to be divided into "compartments one above another"; the fact, of course, being that it is not divided into "compartments" at all, as an inspection of a tangential section will suffice to show.

It is surprising, in a work issued in 1895, to find the old erroneous description of the germination of the

gymnosperm pollen-grain still maintained. We note, however, with satisfaction that a popular mistake (which appears also in the text) is corrected in an editorial note, in which it is rightly stated that Cycads commonly *do* branch in a state of nature.

From what has been said, it will be clear that the treatment of the lower plants is inadequate, and it is to be regretted that Prof. Potter did not see his way to using his editorial discretion more freely. It is, however, easy to find fault with most books; but we have already said that, as regards the latter half of the volume, it is deserving of commendation, and we may add that it is well illustrated, and that, further, it contains, in the form of an appendix by Prof. Potter, a brief account of the chief methods of classification which have been used in arranging the members of the vegetable kingdom.

#### OUR BOOK SHELF.

##### *The Noxious and Beneficial Insects of the State of Illinois.*

Eighteenth Report of the State Entomologist.  
Seventh Report of S. A. Forbes. For the years  
1891 and 1892. (Springfield, Ill., U.S.A., 1894.)

THIS report is mainly devoted to insect attacks affecting "Indian corn" (sometimes known with us as "maize," in the U.S.A. shortly as "corn"), and coming from the trustworthy and well-qualified pen of Prof. Forbes, will be of much service in the country of the crop dealt with, and, in points noticed regarding such of these "pests" as are of very similar habits with our own, may be studied here with much advantage.

The "Monograph of Insect Injuries to Indian Corn" extends to 165 pages, dealing with insects of very various kinds, including amongst them what, without entering here on their scientific appellations, may be generally described as ants of various kinds; beetles, including allies of our turnip flea beetle, wireworms, with click beetle parents, and chafers, with their grubs (truly noted as "the immemorial enemies of agriculture on both sides of the Atlantic"); aphides, or plant lice of various kinds, and some other insects.

The information is the result of ten years' investigation of the economic entomology of the Indian corn plant by the official entomologist of Illinois, joined to such additions from published matter as it appeared desirable to embody with his original observations; and in the words of the writer, whilst a portion of the information is such as he hopes will be "intelligible and practically useful to the actual tiller of the soil," he has also incorporated with this, for "the special benefit of the entomologist, more detailed and thorough-going discussions of the insects themselves, and of their life-histories, habits, and injuries, together with descriptions of the species in all stages as yet recognised."

These minute descriptions, especially of the early stages (so important to the economic entomologist, and so difficult, too often, to obtain) in themselves give the work a high value, and in the practical part there is much to be studied with great benefit. To give a single instance—the indifference of wireworms to various kinds of poisons prepared for their consumption on seed placed for their use (p. 49).

The report is greatly to be recommended to the study of economic entomologists, and its value is added to by fifteen well-executed full-page plates of many of the insects referred to, also by an exhaustive index of thirteen pages, so complete and well arranged as in some instances almost to give headings for a life-history of the insect referred to

E. A. O